

# METHOD AND APPARATUS FOR PLASMA FORMING INNER MAGNETIC BUCKET TO CONTROL A VOLUME OF A PLASMA

## Abstract of the Disclosure

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10 A plasma confinement arrangement for controlling the volume of a plasma while processing a substrate inside a process chamber includes a chamber within which a plasma is both ignited and sustained for processing. The chamber is defined at least in part by a wall and further includes a plasma confinement arrangement. The plasma confinement arrangement includes a magnetic array disposed inside of the chamber. The magnetic array has a plurality of magnetic elements that are disposed around a plasma region within the process chamber.

15 The magnetic field establishes a containment field (a type of "magnetic wall") within the chamber. The containment field can be shifted in a preselected manner to improve operation of the substrate processing system and to reduce the damage and/or cleaning problems caused by the plasma's interaction with other elements of the processing system. Shifting of the containment field can be accomplished by moving magnetic elements in the  
20 magnetic array.